

Service
Service
Service

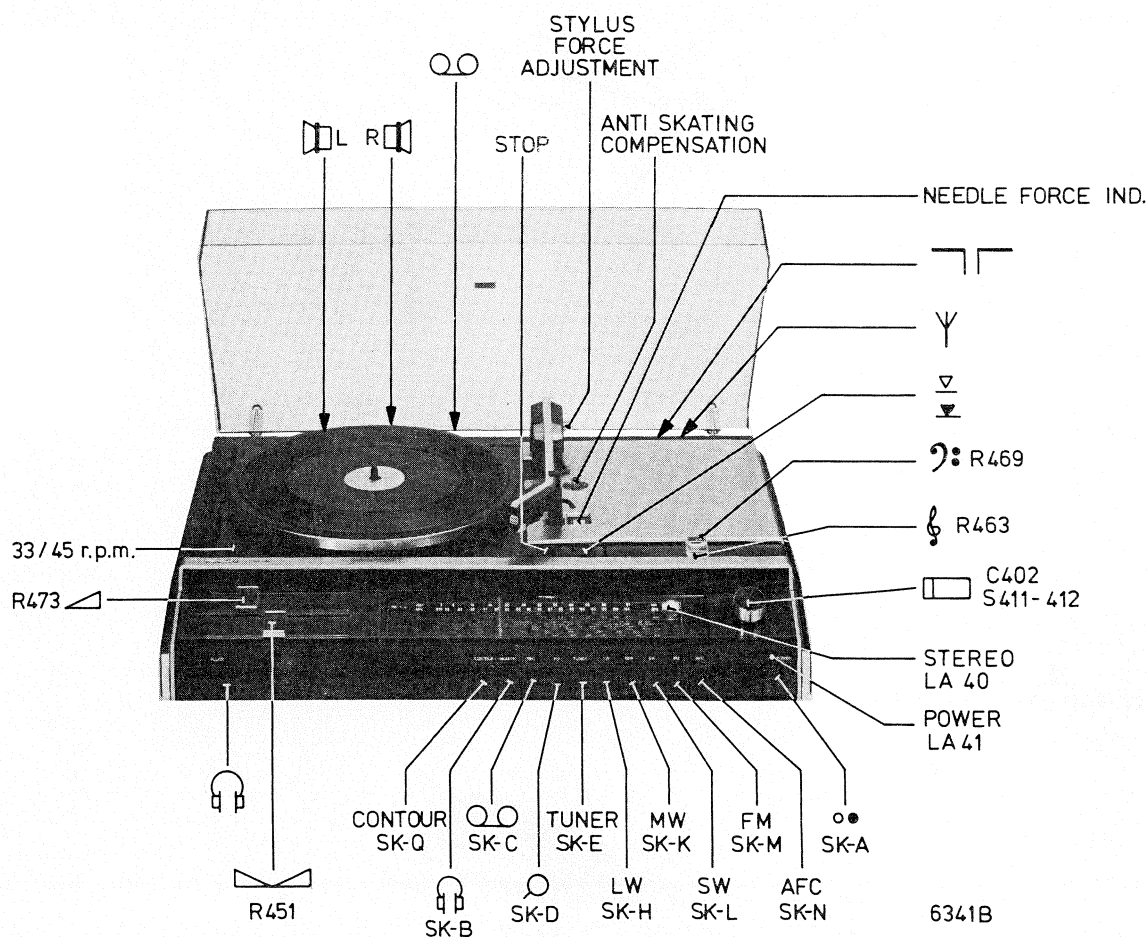
00/15/22/33

50/65/72/83

/50 = /00
/65 = /15
/72 = /22
/83 = /33

+2x22RH443

Service Manual



Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used.

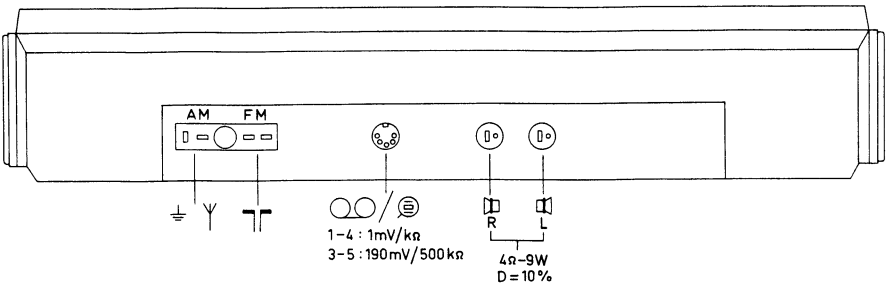
Documentation Technique Service Dokumentation Documentazione di Servizio Huolto-Ohje Manual de Servicio Manual de Servicio



Subject to modification
4822 725 11422
Printed in The Netherlands

PHILIPS

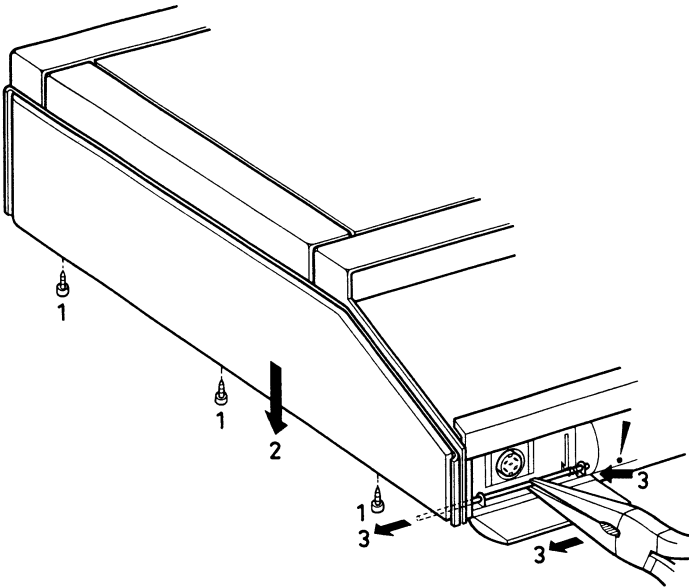
REAR VIEW



6136 C

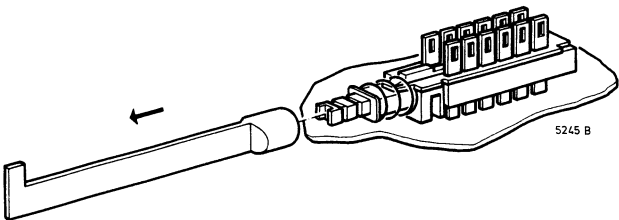
Attention: Replacement var. cap.
Keep during the replacement of the var.cap. the pointer in the middle of the scale

DISMOUNTING THE HEADPHONE-FLAP

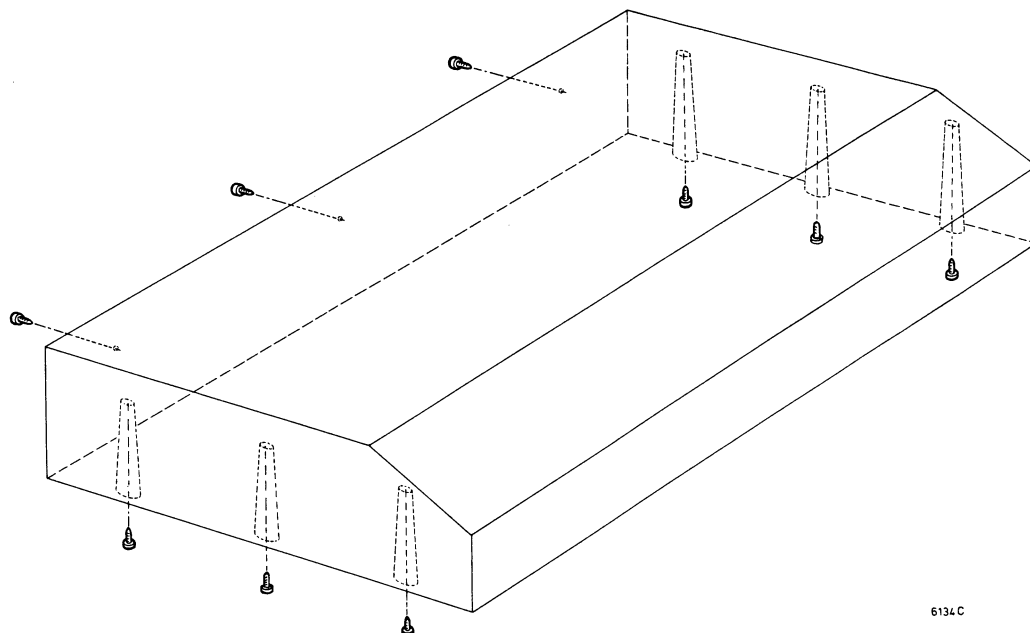


6138 C

COUPLING PIECES

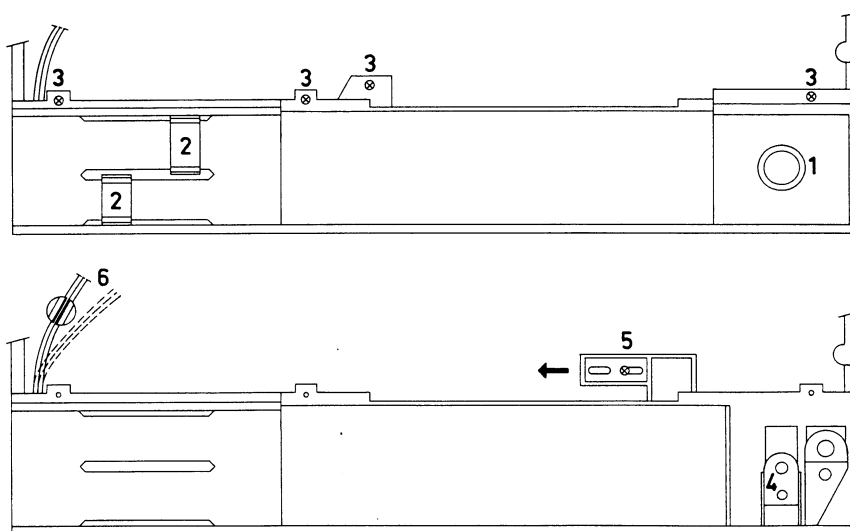


OPENING THE CABINET



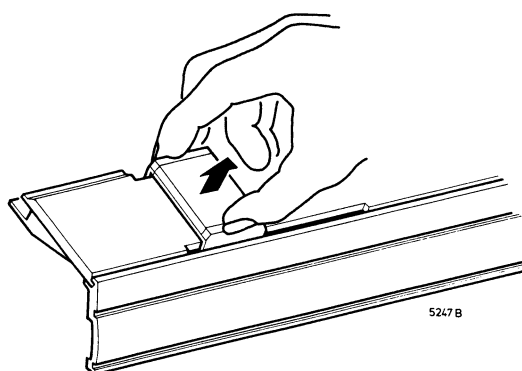
6134 C

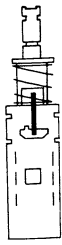
REMOVING THE FRONT-PART



6137 C

REMOVING THE SLIDE KNOBS



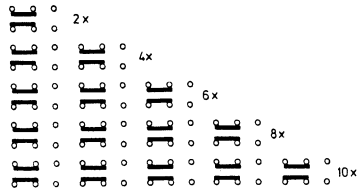


PUSH-PUSH

4822 276 10558

4822 276 10562

4822 276 10561



4822 276 10543

4822 276 10544

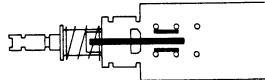
4822 276 10545

4822 276 10546

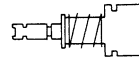
4822 276 10547



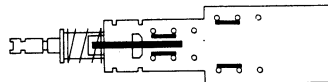
PUSH-PULL



4822 276 10539



4822 276 10559

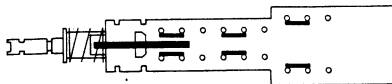


4822 276 10541



4822 404 10233
bracket for transforming a push-pull
switch into a push-push one

4822 404 10234



4822 276 10542

6382 B

ELECTRICAL PARTS

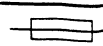
UNITS -U-

FM-tuner	104 MHz	4822 210 10176
FM-IF	10.7 MHz	4822 212 40017
AM-IF	452 kHz	4822 212 40018
AM-IF	460 kHz	4822 214 50122
AM-IF	470 kHz	4822 214 50134
Stereo decoder		4822 210 30027
MD-pre-amplifier		4822 212 40021

RF - PANEL

	-TS-		-D-
TS500	BF495	4822 130 40947	
TS502	BD135	5322 130 40645	
D504	BZX79/C16	5322 130 34086	
	-S-		
S511	Aerial coil SW	4822 156 40613	
S515	Osc. coil SW	4822 156 30492	
S516	Osc. coil MW	4822 156 30493	
S517	Osc. coil LW	4822 156 30494	
S519	Ferroxc. bead	4822 157 40112	
	-C-		
C528,553,562	120 pF, 2 %	4822 122 30093	
C529,531,532,552,554,558	20 pF, trimmer	4822 125 50045	
C533	390 pF, 2 %	4822 122 30091	
C534	2.7 nF, 5 %	4822 121 50474	
C544	2.2 nF, 10 %	4822 122 30114	
C551	1.8 nF, 2 %	5322 121 54044	
C556	280 pF, 1 %	4822 121 50573	
C557	158 pF, 1 %	4822 121 50581	
	-R-		
R600	1.8 M Ω , 1/8 W	4822 110 61194	
R602	1 M Ω , pot. meter	4822 100 10089	
R617	2,2 k Ω pot. meter	4822 100 10029	

MISCELLANEOUS

	-S-		
S510	Ferroceptor MW/LW	4822 158 60366	
S520	Mains transformer	4822 146 20503	
	-C-		
C402b,c	Var. cap. A.M.	4822 125 20184	
C426	3300 μ F, 40 V	4822 124 70237	
	-L-		
LA40,42	6,3 V - 50 mA	4822 134 40003	
LA41,43	6,3 V - 250 mA	4822 134 40007	
	-VL-		
VL673,674	Fuse slow 1,25A	4822 253 30022	
VL1,2	Fuse in S520	4822 252 20007	

AF - PANEL

	-TS-		-D-
TS651,652	BC159B	5322 130 40716	
TS653,654	BC148	5322 130 40318	
TS655,656	BC547B	4822 130 40959	
TS657/659	BD262/263 pair	4822 130 41027	
D665,666	BAW62	5322 130 30613	
D669,670	BY126	5322 130 30192	
671,672			
	-C-		
C686,687	330 pF, 5 %	5322 121 54077	
C703,704	2.2 nF, 10 %	4822 122 30114	
C722,723,724	22 nF	5322 122 30103	
725			
	-R-		
R777,778	NTC, 1.5 k Ω	4822 116 30087	
R783,784	470 Ω , pot. meter	4822 100 10038	
R797,798,799,	1 Ω , 1/4 W	4822 110 53027	
R800,809,810,			
R811,812			
R832	360 Ω , 1/4 W	4822 111 30452	
R834	27 Ω , 1/4 W	4822 111 30003	

VOL/BAL. - CONTROL - PANEL

	-TS-		
TS401,402	BC549B	4822 130 40936	
TS403,404	BC558A	4822 130 40962	
	-C-		
C427,428	150 nF 10 %	4822 121 40404	
	-R-		
R451	100 k Ω /100 k Ω	4822 105 10151	
R473	80k/20k/80k/20 k Ω spec. semi log.	4822 105 10153	

BASS/TREBLE CONTROL - PANEL

	-C-		
C421,422	3.9 nF 10 %	5322 122 30098	
	-R-		
R463,469	47 k Ω /47 k Ω semi log.	4822 105 10152	
	-R-		
R586	VDR	4822 116 20073	

	Carbon resistor E24 series	0.125 W	5 %		Plate ceramic capacitor
	Carbon resistor E12 series	0.25 W	$< 1 \text{ M}\Omega$ 5 % $> 1 \text{ M}\Omega$ 10 %		Flat-foil polyester capacitor
	Carbon resistor E12 series	0,5 W	$< 1,5 \text{ M}\Omega$ 5 % $> 1,5 \text{ M}\Omega$ 10 %		Miniature electrolytic capacitor

- GB
- Find the frequency of the ceramic resonator by varying the HF generator between 445 kHz and 477 kHz. The frequency at which the meter deflection is maximum, is also the IF to which the set must be adjusted.
 - Fully turn out the cores of S412, S413 (AM-IF unit)
 - Set the cores of S415...S418 in advance to mid-position.
 - Adjust for maximum height and symmetry of the response curve.
 - Connect a supply unit to ③ and connect in parallel to the supplying unit a voltmeter. Adjust supply unit for 9.5 V d.c. to be read on the voltmeter. Adjust for maximum slope and symmetry of the "S" curve.
 - Decouple the supply unit and the HF generator. Besides, switch off the HF generator.
 - Adjust R602 in such a way that the voltmeter at point ③ indicates the same voltage as was measured at point ⑤ (so adjust in combination with the IF-FM adjustment !)
 - Adjust R617 in such a way that the voltmeter at point 6 of SK-N indicates the same voltage as was measured at point ⑤
- R428: serves to adjust the input level of the stereo decoder at which this decoder can start operating.
R429: serves to adjust a field-strength indicator

- F
- Déterminer la fréquence du résonateur céramique en faisant varier le générateur HF entre les 445 et les 477 kHz. La fréquence à laquelle la déviation d'aiguille est la plus forte est en même temps la fréquence intermédiaire sur laquelle il faut ajuster.
 - Extraire complètement les noyaux de S412, S413 (bloc AM-FI).
 - Placer auparavant les noyaux de S415 à 418 en position médiane
 - Ajuster sur symétrie et hauteur maximale de la courbe de réponse.
 - Brancher sur ③ une unité d'alimentation et par dessus un voltmètre. Ajuster l'unité d'alimentation sur 9,5 V d.c., lire le résultat sur le voltmètre. Ajuster sur une pente maximum et sur symétrie de la courbe en "S".
 - Débrancher l'unité d'alimentation et le générateur HF (déclencher aussi le générateur HF).
 - Régler R602 pour que le voltmètre sur le point ③ présente de nouveau la même tension que celle mesurée au ⑤ (donc, ajustage combiné avec l'ajustage FI-FM).
 - Régler R617 pour que le voltmètre sur le point 6 de SK-N présente de nouveau la même tension que celle mesurée au ⑤
- R428: sert au réglage du niveau d'entrée du décodeur stéréo, mettant celui-ci en fonctionnement.
R429: sert au réglage d'un indicateur d'intensité de champ.

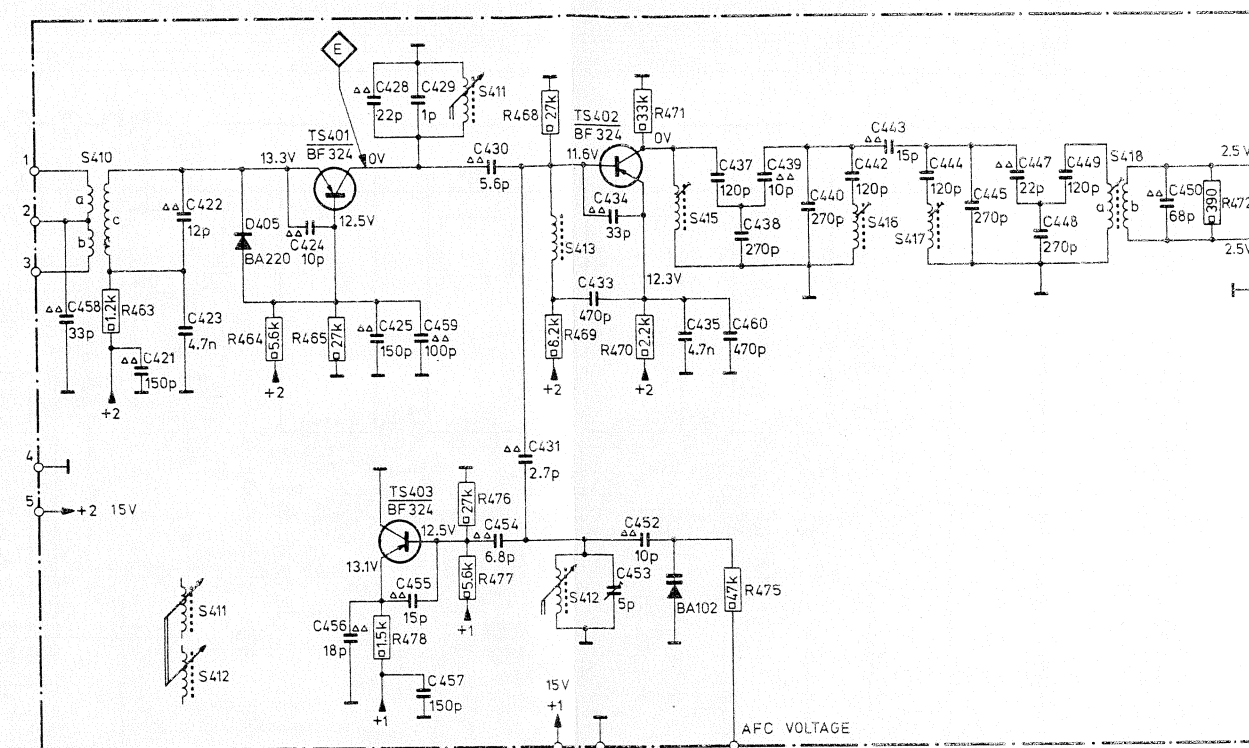
- I
- Determinare la frequenza del resonatore ceramico facendo variare la frequenza del generatore AF fra i 445 kHz e i 477 kHz. La frequenza alla quale è ottenuta la piena deviazione dello strumento di misura è massima è anche la FI sulla quale occorre regolare l'apparecchio.
 - Togliere completamente i nuclei de S412, S413 (unità AM-IF).
 - Quindi, posizionare i nuclei delle bobine S415 a 418 in posizione media.
 - Regolare per altezza e simmetria della curva di risposta.
 - Collegare su ③ un unità d'alimentazione e sopra di essa un voltmetro. Regolare l'unità di alimentazione su di 9,5 V d.c. e leggere il risultato sul voltmetro. Regolare per pendenza massima e per simmetria della curva ad "S".

- NL
- Bepaal de frekwentie van de keramische resonator, door de HF-generator te variëren tussen 445 kHz en 477 kHz. De frekwentie waarbij de uitslag van de meter maximaal is, is dan ook de MF waarop wordt afgeregeld.
 - Kernen van S412, S413 (AM-IF unit) geheel uitdraaien
 - Vooraf de kernen van S415 t/m S418 in de middenstand plaatsen
 - Regel af op max. hoogte en symmetrie van de doorlaatkromme.
 - Sluit op ③ een PSA met daarover een voltmeter aan. PSA regelen op 9,5 V d.c. af te lezen op de voltmeter. Afregelen op max. steilheid en symetrie van de "S" - kromme.
 - PSA en HF generator loskoppelen (schakel tevens HF generator uit).
 - R602 dusdanig regelen dat de voltmeter op punt ③ weer dezelfde spanning aangeeft als bij ⑤ gemeten werd. (Dus afregeling in combinatie met MF-FM afregeling !)
 - R617 dusdanig regelen dat de voltmeter op punt 6 van SK-N weer dezelfde spanning aangeeft als bij ⑤ gemeten werd.
- R428: voor instelling van het ingangsniveau van de stereodecoder waarbij deze kan gaan werken.
R429: voor instelling van een veldsterkte-indikator.

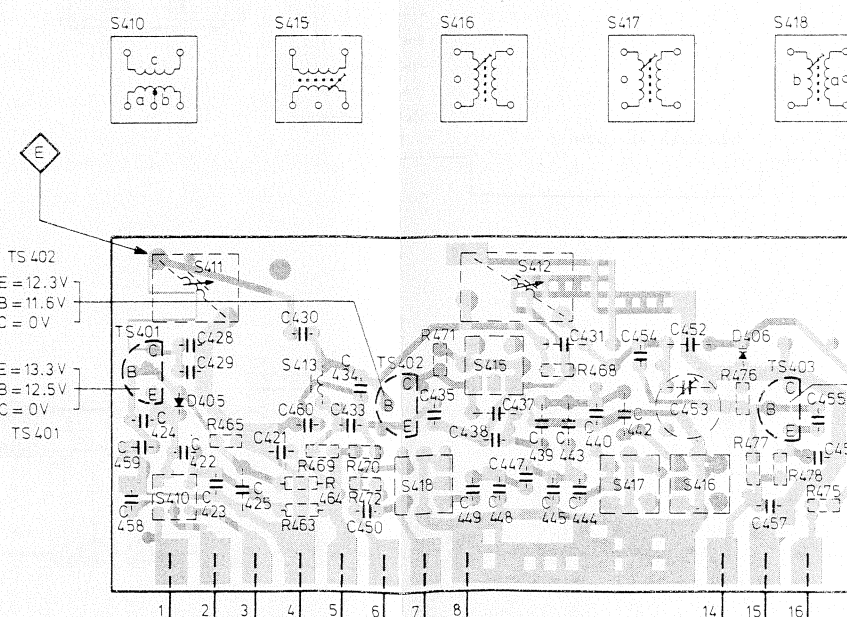
- D
- Bestimme die Frequenz des keramischen Resonators durch Variieren des HF-Generators zwischen 445 kHz und 477 kHz. Die Frequenz, bei der der Messerausschlag maximal ist, ist die Eigenfrequenz des Resonators. Dies ist die ZF auf die justiert wird.
 - Drehe die Kerne von S412, S413 (AM/FM-Einheit) ganz heraus.
 - Setze zuerst die Kerne von S415...S418 in Mittelstellung
 - Justiere auf maximale Höhe und Symmetrie der Durchlasskurve.
 - Schliesse an ③ eine Speiseeinheit und parallel zu dieser Einheit ein Voltmeter an. Justiere die Speiseeinheit auf 9,5 V d.c. (abzulesen am Voltmeter). Justiere auf maximale Steilheit und Symmetrie der "S"-Kurve
 - Entkopple die Speiseeinheit und den HF-Generator (Schalte ausserdem den HF-Generator ab).
 - Justiere R602 so, dass das Voltmeter an Punkt ③ wieder die gleiche Spannung anzeigt wie bei ⑤ gemessen wurde (Also justieren in Kombination mit der ZF-FM Justierung).
 - Justiere R617 so, dass das Voltmeter an Punkt 6 von SK-N wieder die gleiche Spannung anzeigt wie bei ⑤ gemessen wurde
- R428: dient zum Einstellen des Eingangspegels des Stereodekoders, bei dem dieser Dekoder in Tätigkeit gesetzt wird.
R429: dient zum Einstellen eines Feldstärke-Indikators.

-
- Scollegare l'unità di alimentazione e il generatore AF (mettere anche il generatore AF fuori servizio).
 - Regolare R602 perchè il voltmetro, sul punto ③ presenti di nuovo la stessa tensione che su ⑤ (quindi combinare la regolazione con quella di FI-AM).
 - Regolare R617 perchè il voltmetro, sul punto 6 SK-N presenti di nuovo la stessa tensione che su ⑤
- R428: serve alla regolazione del livello d'entrata del decodatore stereofonico mettendolo in funzionamento.
R429: serve alla regolazione di un indicatore d'intensità di campo.

FM-TUNER

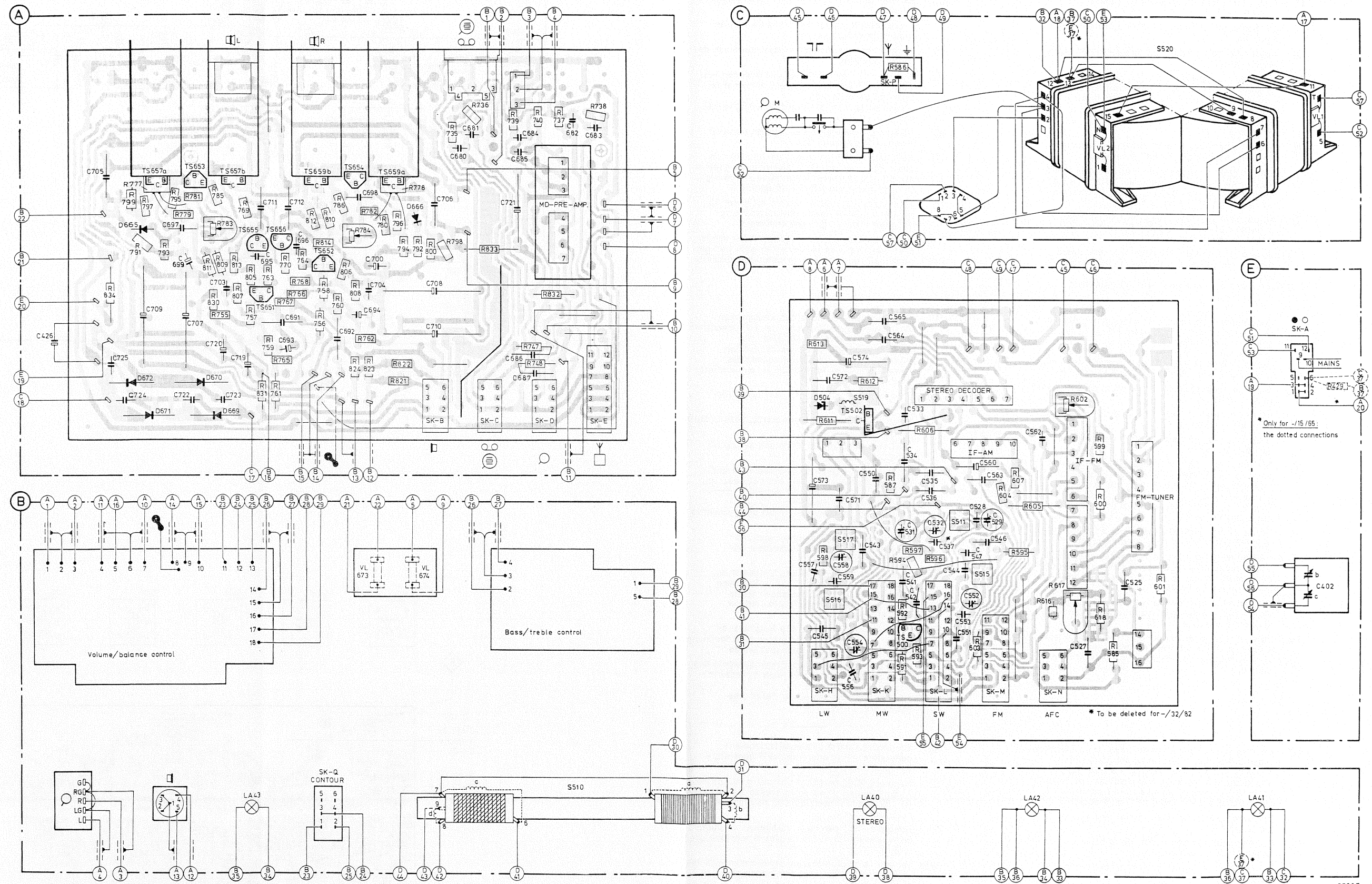


VOLTAGES HAVE BEEN MEASURED AT A SUPPLY VOLTAGE OF 15V

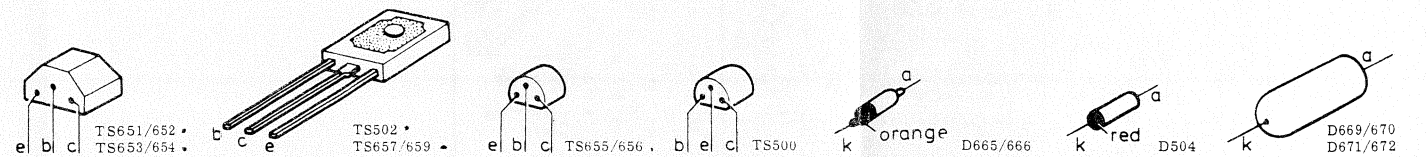
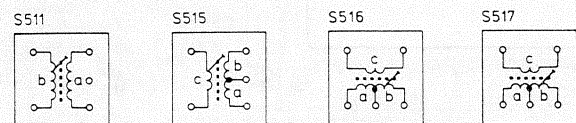
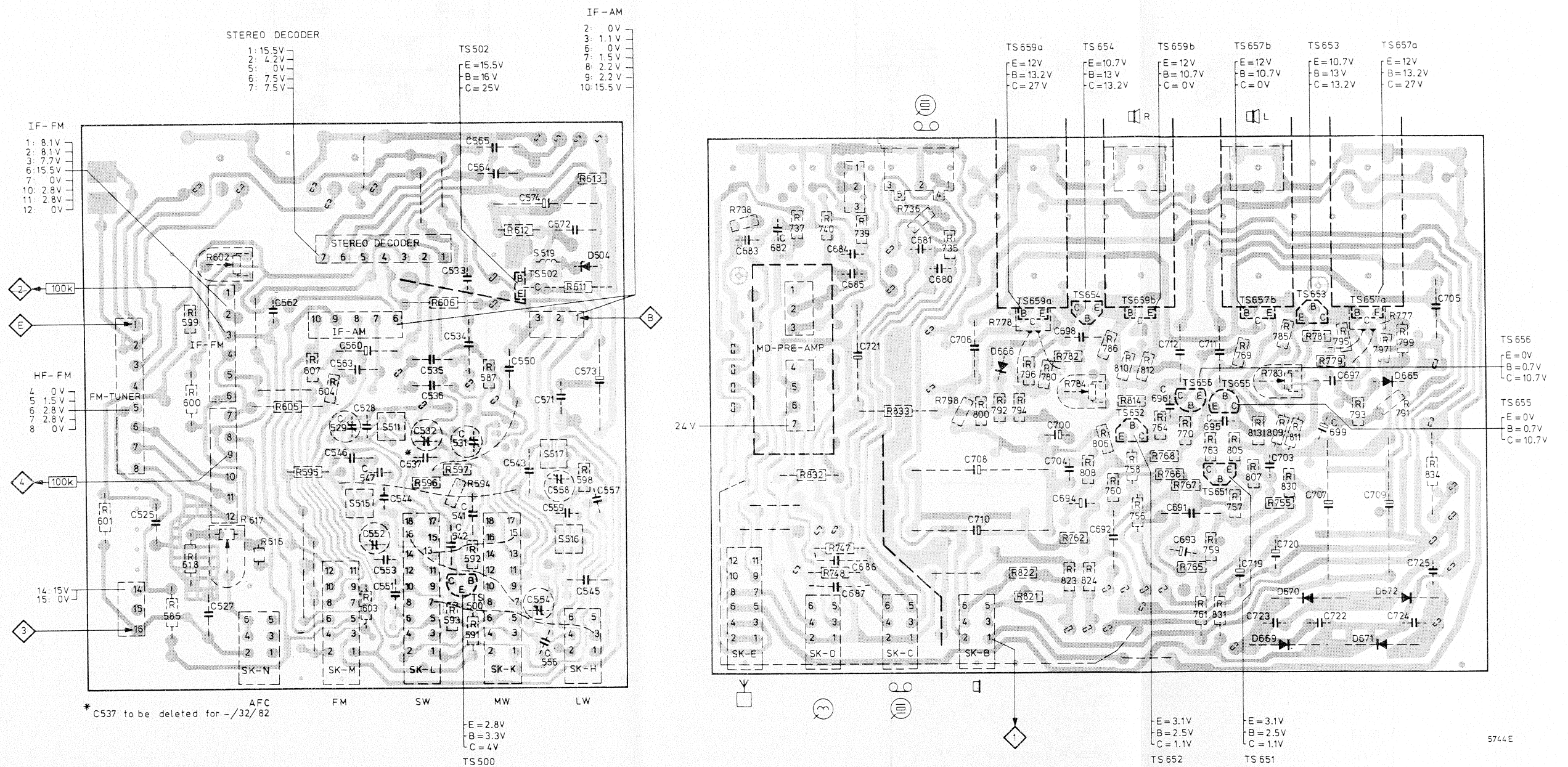


el b1 d
TS 401/402
TS 403

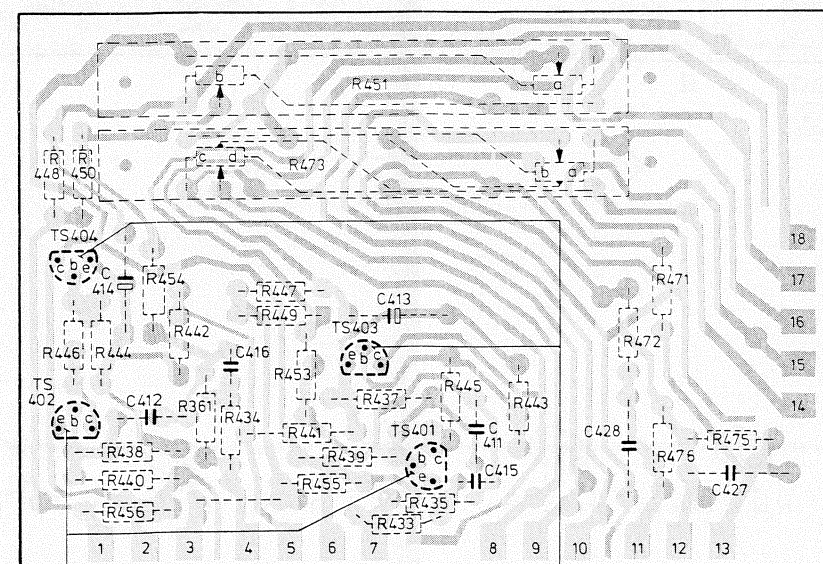
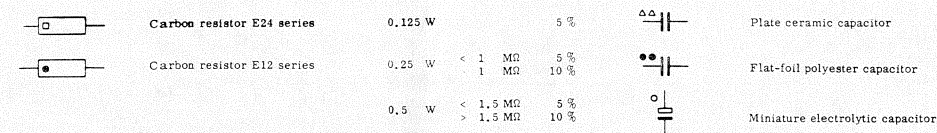
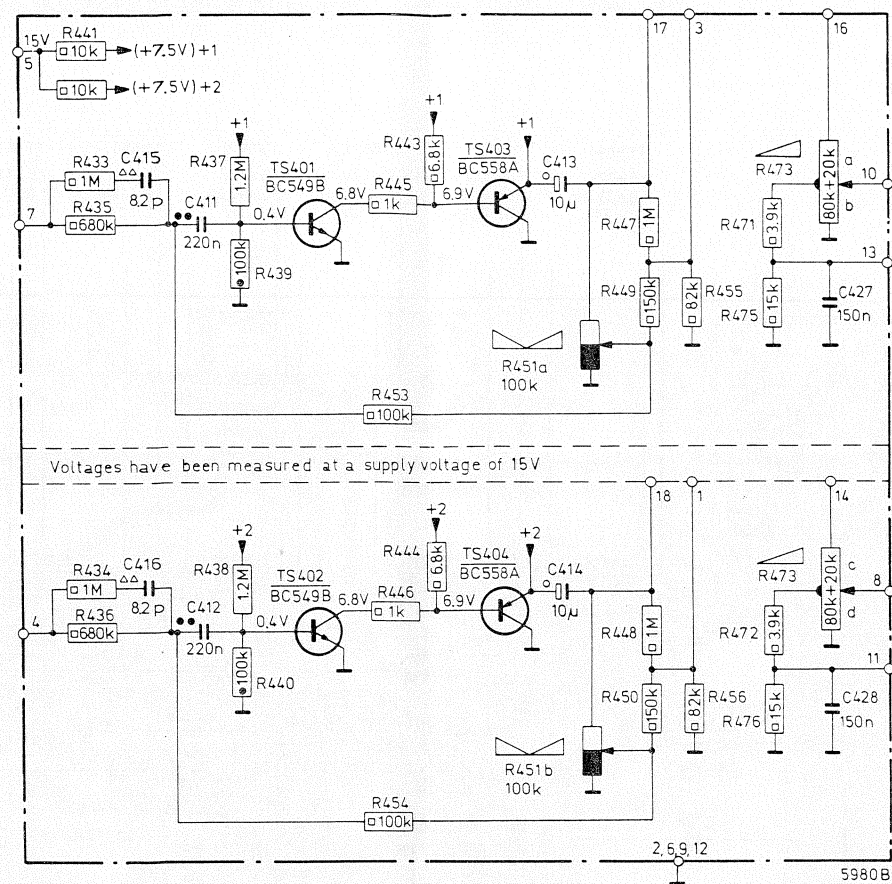
C	705	697 699										703	695 711 712 696		698 700		706 680 681		721 684 685		682 683		573 572 571 574 550 565 564 531+536										528 560 563 529 562			C																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
C	426	725	724	709	722 707 720		723 719		693 691		692 694 704		708 710		686 687		557 545 558 559 556 554 543 541 542										537 544 551+553 547 546		527		525		402			C																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
R		799	777	791	797	793	795	779	781	811	785	783	809	813	769	770	812	814	810	786	806	784	782	780	796	778	794	792	800	798	735	736	833	739	740	737	738																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									



C			562	529 563 560 528	531-536 564 565 550	574 571 572	573		683	682	685 684 721	681 680	706	700 698	696 712	711 695	699 697	705
C	525	527		546 547 551-553 544	537 542 541 543 554 556 559 558 545 557						686 687		710 708	704 694 692	693 691	719 723 703 720	707 722	709 724 725
R	600 599 602		605	607 604		606 587 612	611 613		738	737	740 739 833 736 735 798 800 792 794 778 796 780 782 784 806 786 810 814 812				770 769 813 809 783 785 811 781 779 795 793 797 791 777 799			
R	601	585 618 617 616		595	603	596 597 591-594	598				832 748 747				821-824 762 808 760 758 756 763-768 761 759 831 757 805 807 755 830			834
MISC.				S515 S511		TS500	TS502 S516 S517 S19	D504						D666 TS659a TS654 652 659b		TS656 651 655 657b	D669 670 TS653 657a D671 672 665	

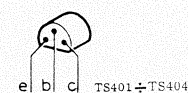


VOLUME/BALANCE CONTROL

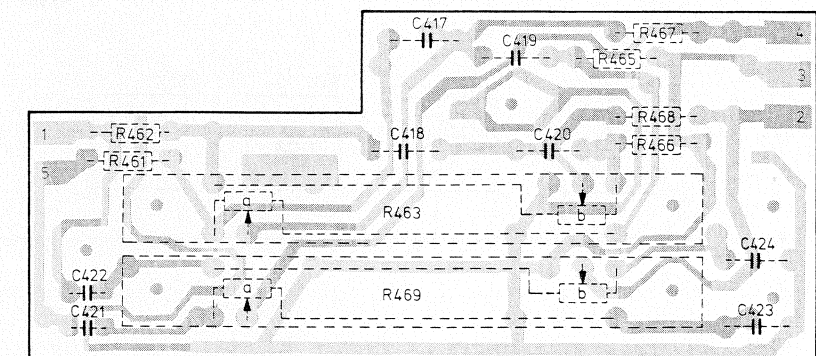
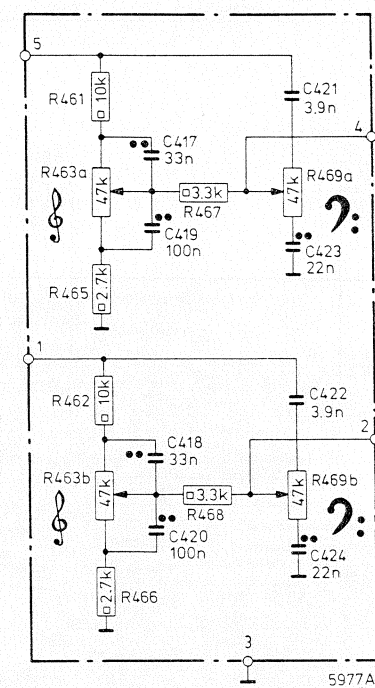


TS401,402
e= 0V
b= 0.4V
c= 6.8V

TS403,404
e= 7.5V
b= 6.9V
c= 0V

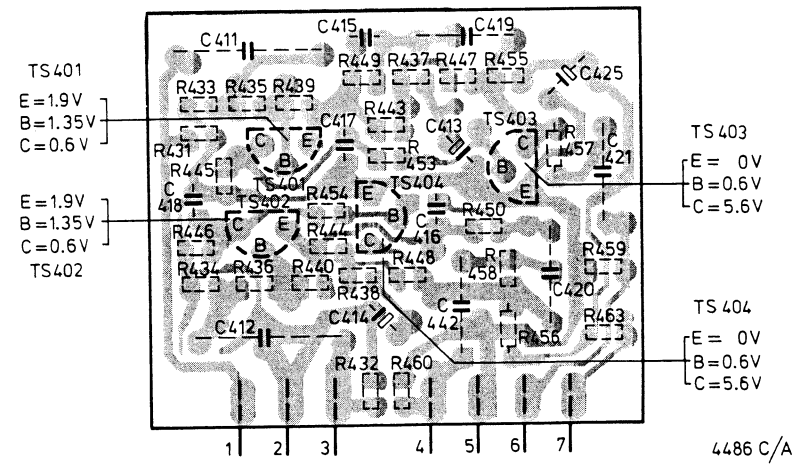
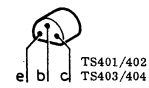
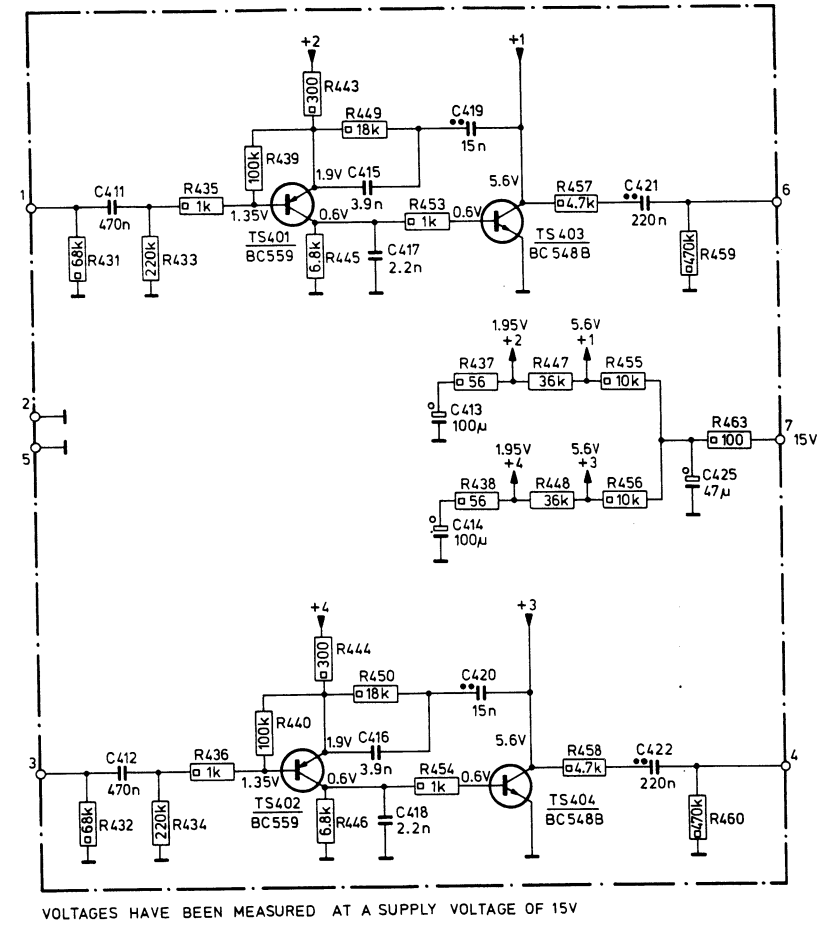


TONE CONTROL

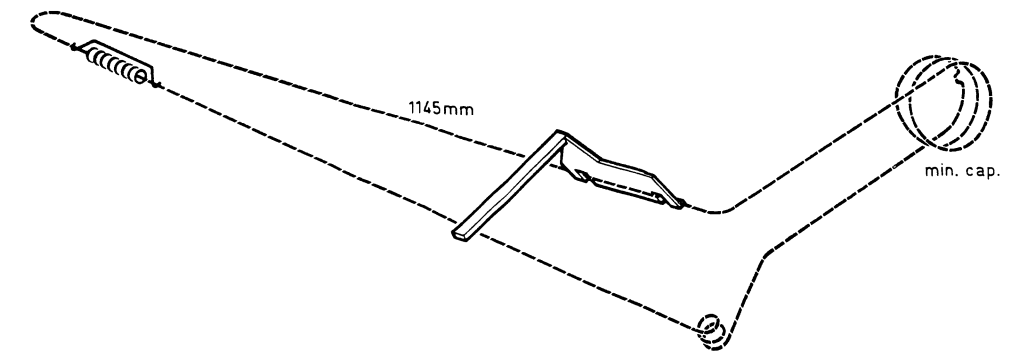


5978 A

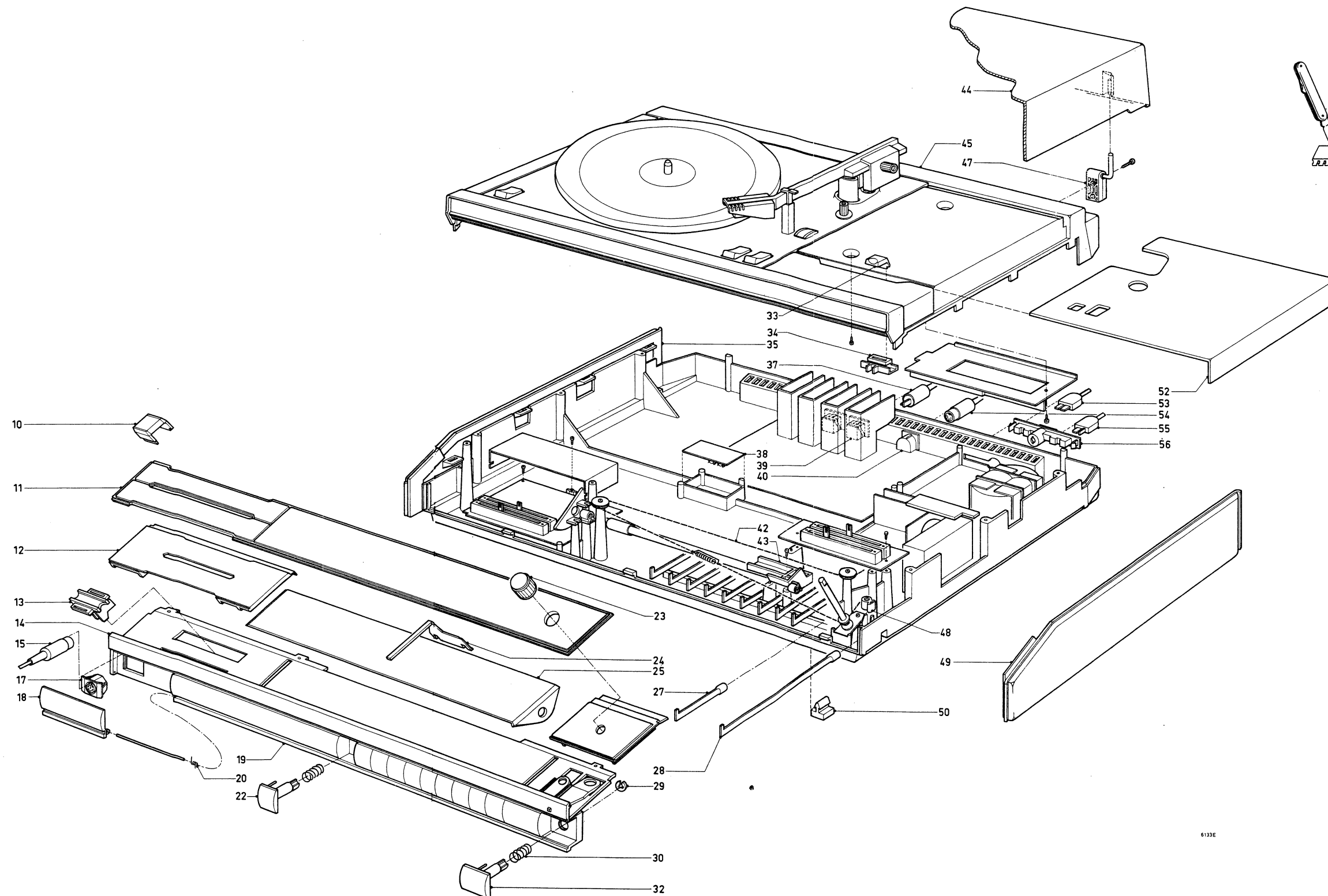
MD - PREAMPLIFIER



DRIVE CORD RUN



6135 C

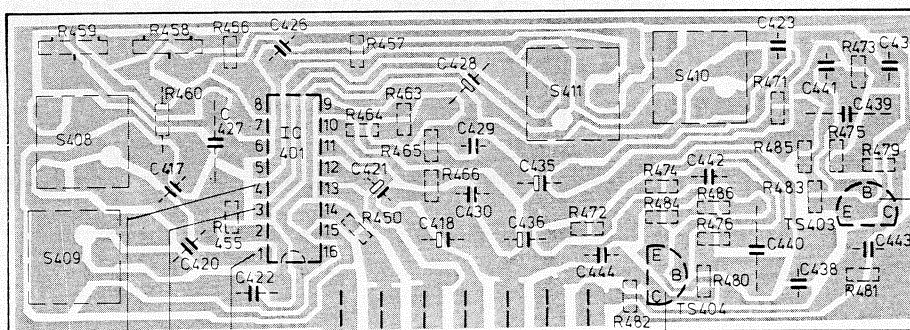
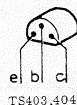


Item	Code number
1	5322 267 64027 (10p)
2	4822 267 50209 (10p)
3	4822 267 50211 (10p)
4	4822 268 10107
5	5322 267 64007 (20p)
6	5322 264 54017 (strip)

MECHANICAL PARTSLIST

Item	Codenumber
10	4822 411 60415
11	4822 459 40343
12	4822 462 71028
13	4822 404 20178
14	4822 426 50167
15	4822 264 40092
17	4822 267 40215
18	4822 426 60086
20	4822 492 40572
22	4822 410 21578
23	4822 413 40637
24	4822 450 80425
25	4822 333 50519
27	4822 404 10277
28	4822 404 20177
29	4822 530 70126
30	4822 492 51001
32	4822 410 40054
33	4822 411 60416
34	4822 404 20179
35	4822 426 30065
37	4822 264 30041
38	4822 492 60063
39	4822 267 30198
40	4822 267 40209
42	5322 321 34023
43	4822 256 90164
44	4822 444 30219
45	4822 426 40055
45 -/28	4822 426
47	4822 417 10631
48	4822 255 10007
49	4822 426 30064
50	4822 462 40326
52	4822 460 20146
53	4822 264 30043
54	4822 264 40023
55	4822 264 30042
56	4822 267 20155

STEREO DECODER



IC401

2.9V	8	9	4.9V
15V	7	10	4.9V
2.6V	6	11	0.3V
2.75V	5	12	1.13V
2.9V	4	13	
2.9V	3	14	4.2V
10.6V	2	15	0V
14.5V	1	16	

ALL VOLTAGES IN THE UNIT HAVE BEEN
MEASURED AT A SUPPLY VOLTAGE OF 15 VOLTS
AND WITH PILOTTONE ON POINT 2 OF STEREODECODER

4482 B/A

Repeat - Herhalen - Répéter - Wiederholen - Ricominciare - Repetera - Gentage - Gjntagelse - Toista

GB

- 3 Connect an oscilloscope. Adjust the S-signal for maximum (1) and so that a well-defined zero passage is obtained. The envelopes of the L and R signals should intersect on the x-axis (2) See fig. 1.

F

- 3 Brancher un oscillographe. Régler le signal S sur maximum (1) pour que le passage du zéro soit précis (2). Les enveloppes du signal L et R doivent s'entrecouper sur l'axe du zéro (2), voir fig. 1.

(I)

- 3 Collegare un oscillografo. Regolare gli involucri del segnale S su massimo (1) perchè il passaggio per lo zero sia preciso (2)
Gli involucri del segnale L e R debbono tagliarsi sull'asse dello zero (2), vedi fig. 1.

(NL

- 2 Punt 3 van de stereodecoder aan massa leggen en een dusdanig sterk signaal toevoeren dat de stereoinicator werkt.
- 3 Sluit een oscillograaf aan. Het S-sigitaal op maximum (1) afregelen en zo dat een scherpe nuldoorgang verkregen wordt (2). De omhullenden van het L en R signaal moeten elkaar op de nulas snijden (2) (zie fig. 1)

(D)

- 3 Schliesse einen Oszillografen an. Justiere das S-Signal auf Maximum (1), und so dass ein scharfer Nulldurchgang erhalten wird. Die Umhüllungskurven des L- und R-Signals sollen sich auf der Nullachse schneiden (2) Siehe Abb. 1.

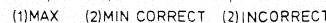
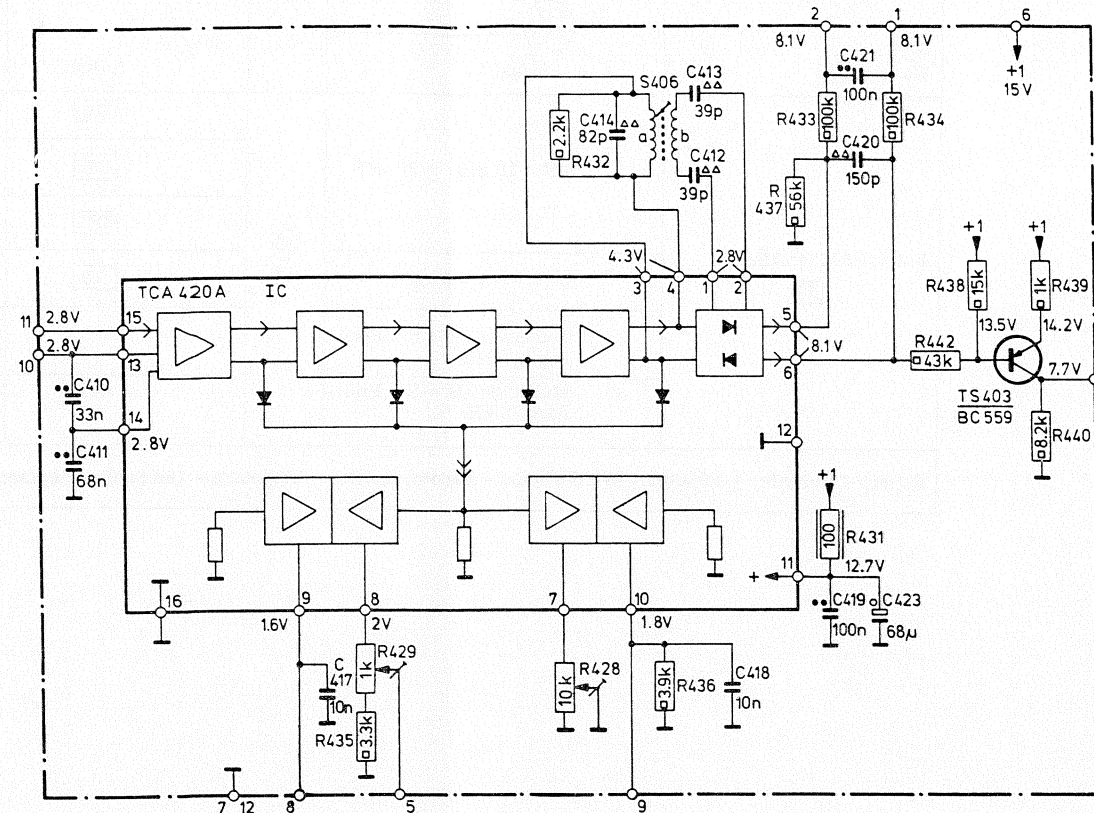


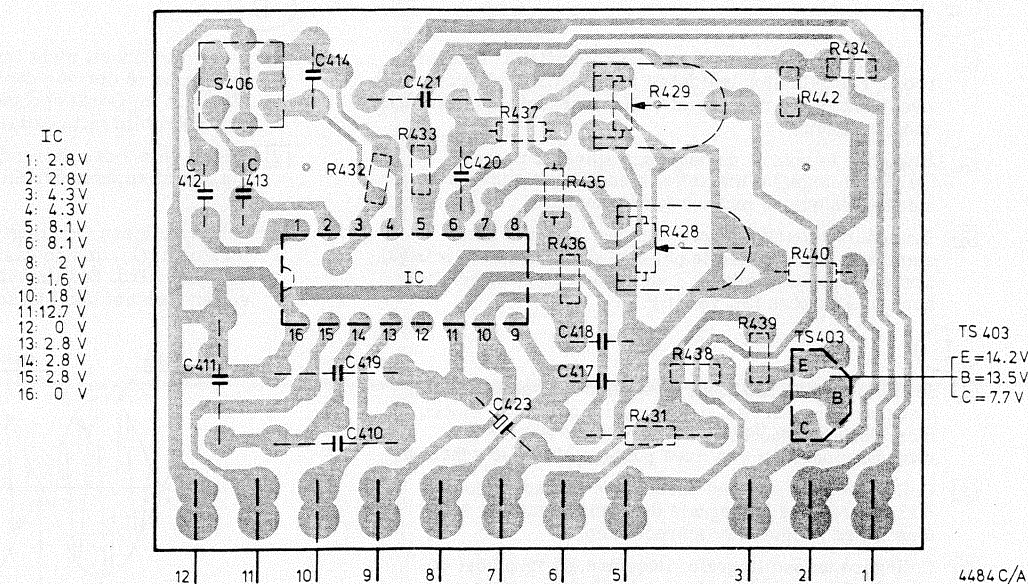
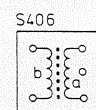
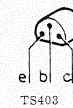
Fig. 1

4992A

IF-FM UNIT

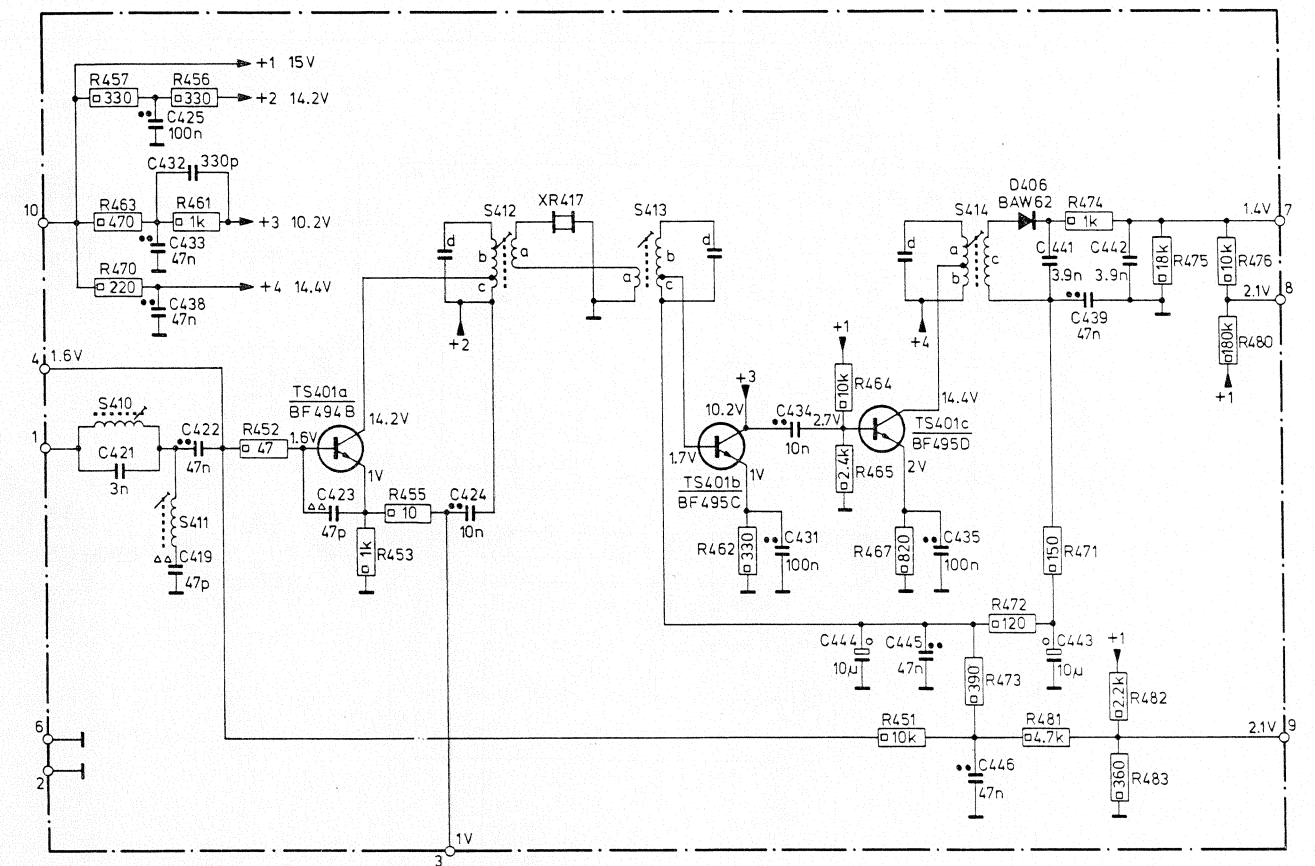


VOLTAGES HAVE BEEN MEASURED AT A SUPPLY VOLTAGE OF 15V

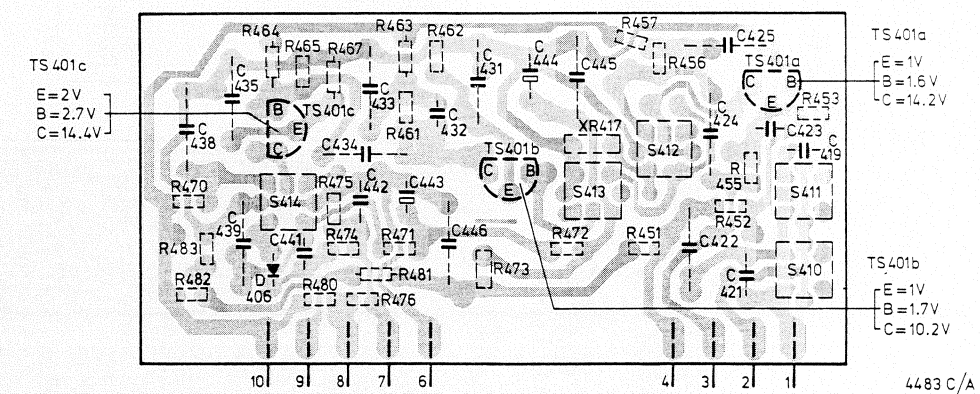
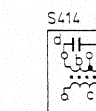
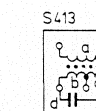
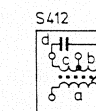
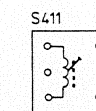
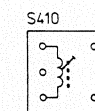
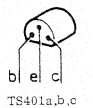


4484 C/A

IF-AM UNIT



VOLTAGES HAVE BEEN MEASURED AT A SUPPLY VOLTAGES OF 15V



4483 C/A